



IFWO

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/682,011

DATE: 08/30/2004

TIME: 12:37:43

Input Set : N:\Crf3\RULE60\10682011.raw  
 Output Set: N:\CRF4\08302004\J682011.raw

1 <110> APPLICANT: Alibhai, Murtaza  
 2 Rydel, Timothy  
 3 <120> TITLE OF INVENTION: Insect Inhibitory Lipid Acyl Hydrolases  
 4 <130> FILE REFERENCE: 38-21 (51842)B  
 5 <140> CURRENT APPLICATION NUMBER: US/10/682,011  
 6 <141> CURRENT FILING DATE: 2003-10-09  
 7 <150> PRIOR APPLICATION NUMBER: US/09/755,274  
 8 <151> PRIOR FILING DATE: 2001-01-05  
 9 <160> NUMBER OF SEQ ID NOS: 60  
 10 <170> SOFTWARE: PatentIn version 3.0  
 12 <210> SEQ ID NO: 1  
 13 <211> LENGTH: 386  
 14 <212> TYPE: PRT  
 15 <213> ORGANISM: Solanum cardiophyllum  
 16 <220> FEATURE:  
 W--> 17 <221> NAME/KEY: Protein  
 18 <222> LOCATION: (1)..(386)  
 19 <223> OTHER INFORMATION: patatin homolog pat17 amino acid sequence  
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 21 Met Ala Thr Thr Lys Ser Phe Leu Ile Leu Ile Phe Met Ile Leu Ala  
 22 1 5 10 15  
 23 Thr Thr Ser Ser Thr Phe Ala Gln Leu Gly Glu Met Val Thr Val Leu  
 24 20 25 30  
 25 Ser Ile Asp Gly Gly Ile Arg Gly Ile Ile Pro Ala Thr Ile Leu  
 26 35 40 45  
 27 Glu Phe Leu Glu Gly Gln Leu Gln Glu Met Asp Asn Asn Ala Asp Ala  
 28 50 55 60  
 29 Arg Leu Ala Asp Tyr Phe Asp Val Ile Gly Gly Thr Ser Thr Gly Gly  
 30 65 70 75 80  
 31 Leu Leu Thr Ala Met Ile Ser Thr Pro Asn Glu Asn Asn Arg Pro Phe  
 32 85 90 95  
 33 Ala Ala Ala Lys Glu Ile Val Pro Phe Tyr Phe Glu His Gly Pro Gln  
 34 100 105 110  
 35 Ile Phe Asn Pro Ser Gly Gln Ile Leu Gly Pro Lys Tyr Asp Gly Lys  
 36 115 120 125  
 37 Tyr Leu Met Gln Val Leu Gln Glu Lys Leu Gly Glu Thr Arg Val His  
 38 130 135 140  
 39 Gln Ala Leu Thr Glu Val Val Ile Ser Ser Phe Asp Ile Lys Thr Asn  
 40 145 150 155 160  
 41 Lys Pro Val Ile Phe Thr Lys Ser Asn Leu Ala Asn Ser Pro Glu Leu  
 42 165 170 175  
 43 Asp Ala Lys Met Tyr Asp Ile Ser Tyr Ser Thr Ala Ala Ala Pro Thr  
 44 180 185 190

ENTERED

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45 Tyr Phe Pro Pro His Tyr Phe Val Thr Asn Thr Ser Asn Gly Asp Glu
46 195 200 205
47 Tyr Glu Phe Asn Leu Val Asp Gly Ala Val Ala Thr Val Ala Asp Pro
48 210 215 220
49 Ala Leu Leu Ser Ile Ser Val Ala Thr Arg Leu Ala Gln Lys Asp Pro
50 225 230 235 240
51 Ala Phe Ala Ser Ile Arg Ser Leu Asn Tyr Lys Lys Met Leu Leu Leu
52 245 250 255
53 Ser Leu Gly Thr Gly Thr Ser Glu Phe Asp Lys Thr Tyr Thr Ala
54 260 265 270
55 Lys Glu Ala Ala Thr Trp Thr Ala Val His Trp Met Leu Val Ile Gln
56 275 280 285
57 Lys Met Thr Asp Ala Ala Ser Ser Tyr Met Thr Asp Tyr Tyr Leu Ser
58 290 295 300
59 Thr Ala Phe Gln Ala Leu Asp Ser Lys Asn Asn Tyr Leu Arg Val Gln
60 305 310 315 320
61 Glu Asn Ala Leu Thr Gly Thr Thr Glu Met Asp Asp Ala Ser Glu
62 325 330 335
63 Ala Asn Met Glu Leu Leu Val Gln Val Gly Glu Asn Leu Leu Lys Lys
64 340 345 350
65 Pro Val Ser Glu Asp Asn Pro Glu Thr Tyr Glu Glu Ala Leu Lys Arg
66 355 360 365
67 Phe Ala Lys Leu Leu Ser Asp Arg Lys Lys Leu Arg Ala Asn Lys Ala
68 370 375 380
69 Ser Tyr
70 385
72 <210> SEQ ID NO: 2
73 <211> LENGTH: 365
74 <212> TYPE: PRT
75 <213> ORGANISM: synthetic
76 <220> FEATURE:

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78 <222> LOCATION: (1)..(365)
79 <223> OTHER INFORMATION: Patatin isozyme PatFm (mature protein lacking signal peptide)
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82 1 5 10 15
83 Ile Lys Gly Ile Ile Pro Gly Thr Ile Leu Glu Phe Leu Glu Gly Gln
84 20 25 30
85 Leu Gln Lys Met Asp Asn Asn Ala Asp Ala Arg Leu Ala Asp Tyr Phe
86 35 40 45
87 Asp Val Ile Gly Gly Thr Ser Thr Gly Gly Leu Leu Thr Ala Met Ile
88 50 55 60
89 Thr Thr Pro Asn Glu Asn Asn Arg Pro Phe Ala Ala Ala Asn Glu Ile
90 65 70 75 80
91 Val Pro Phe Tyr Phe Glu His Gly Pro His Ile Phe Asn Ser Arg Tyr
92 85 90 95
93 Trp Pro Ile Phe Trp Pro Lys Tyr Asp Gly Lys Tyr Leu Met Gln Val
94 100 105 110

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95 Leu Gln Glu Lys Leu Gly Glu Thr Arg Val His Gln Ala Leu Thr Glu
96 115 120 125
97 Val Ala Ile Ser Ser Phe Asp Ile Lys Thr Asn Lys Pro Val Ile Phe
98 130 135 140
99 Thr Lys Ser Asn Leu Ala Lys Ser Pro Glu Leu Asp Ala Lys Thr Tyr
100 145 150 155 160
101 Asp Ile Cys Tyr Ser Thr Ala Ala Ala Pro Thr Tyr Phe Pro Pro His
102 165 170 175
103 Tyr Phe Ala Thr Asn Thr Ile Asn Gly Asp Lys Tyr Glu Phe Asn Leu
104 180 185 190
105 Val Asp Gly Ala Val Ala Thr Val Ala Asp Pro Ala Leu Leu Ser Val
106 195 200 205
107 Ser Val Ala Thr Arg Arg Ala Gln Glu Asp Pro Ala Phe Ala Ser Ile
108 210 215 220
109 Arg Ser Leu Asn Tyr Lys Lys Met Leu Leu Leu Ser Leu Gly Thr Gly
110 225 230 235 240
111 Thr Thr Ser Glu Phe Asp Lys Thr His Thr Ala Glu Glu Thr Ala Lys
112 245 250 255
113 Trp Gly Ala Leu Gln Trp Met Leu Val Ile Gln Gln Met Thr Glu Ala
114 260 265 270
115 Ala Ser Ser Tyr Met Thr Asp Tyr Tyr Leu Ser Thr Val Phe Gln Asp
116 275 280 285
117 Leu His Ser Gln Asn Asn Tyr Leu Arg Val Gln Glu Asn Ala Leu Thr
118 290 295 300
119 Gly Thr Thr Thr Lys Ala Asp Asp Ala Ser Glu Ala Asn Met Glu Leu
120 305 310 315 320
121 Leu Ala Gln Val Gly Glu Asn Leu Leu Lys Lys Pro Val Ser Lys Asp
122 325 330 335
123 Asn Pro Glu Thr Tyr Glu Glu Ala Leu Lys Arg Phe Ala Lys Leu Leu
124 340 345 350
125 Ser Asp Arg Lys Lys Leu Arg Ala Asn Lys Ala Ser Tyr
126 355 360 365
128 <210> SEQ ID NO: 3
129 <211> LENGTH: 364
130 <212> TYPE: PRT
131 <213> ORGANISM: synthetic
132 <220> FEATURE:
W--> 133 <221> NAME/KEY: Protein
134 <222> LOCATION: (1)..(364)
135 <223> OTHER INFORMATION: Patatin isozyme PatIM (mature protein lacking signal
peptide)
136 <400> SEQUENCE: 3
137 Pro Trp Leu Glu Glu Met Val Thr Val Leu Ser Ile Asp Gly Gly Gly
138 1 5 10 15
139 Ile Lys Gly Ile Ile Pro Ala Ile Ile Leu Glu Phe Leu Glu Gly Gln
140 20 25 30
141 Leu Gln Glu Val Asp Asn Asn Lys Asp Ala Arg Leu Ala Asp Tyr Phe
142 35 40 45
143 Asp Val Ile Gly Gly Thr Ser Thr Gly Gly Leu Leu Thr Ala Met Ile
144 50 55 60

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```

145 Thr Thr Pro Asn Glu Asn Asn Arg Pro Phe Ala Ala Ala Lys Asp Ile
146 65 70 75 80
147 Val Pro Phe Tyr Phe Glu His Gly Pro His Ile Phe Asn Tyr Ser Gly
148 85 90 95
149 Ser Ile Leu Gly Pro Met Tyr Asp Gly Lys Tyr Leu Leu Gln Val Leu
150 100 105 110
151 Gln Glu Lys Leu Gly Glu Thr Arg Val His Gln Ala Leu Thr Glu Val
152 115 120 125
153 Ala Ile Ser Ser Phe Asp Ile Lys Thr Asn Lys Pro Val Ile Phe Thr
154 130 135 140
155 Lys Ser Asn Leu Ala Lys Ser Pro Glu Leu Asp Ala Lys Met Tyr Asp
156 145 150 155 160
157 Ile Cys Tyr Ser Thr Ala Ala Ala Pro Ile Tyr Phe Pro Pro His His
158 165 170 175
159 Phe Val Thr His Thr Ser Asn Gly Ala Arg Tyr Glu Phe Asn Leu Val
160 180 185 190
161 Asp Gly Ala Val Ala Thr Val Gly Asp Pro Ala Leu Leu Ser Leu Ser
162 195 200 205
163 Val Ala Thr Arg Leu Ala Gln Glu Asp Pro Ala Phe Ser Ser Ile Lys
164 210 215 220
165 Ser Leu Asp Tyr Lys Gln Met Leu Leu Leu Ser Leu Gly Thr Gly Thr
166 225 230 235 240
167 Asn Ser Glu Phe Asp Lys Thr Tyr Thr Ala Glu Glu Ala Ala Lys Trp
168 245 250 255
169 Gly Pro Leu Arg Trp Met Leu Ala Ile Gln Gln Met Thr Asn Ala Ala
170 260 265 270
171 Ser Phe Tyr Met Thr Asp Tyr Tyr Ile Ser Thr Val Phe Gln Ala Arg
172 275 280 285
173 His Ser Gln Asn Asn Tyr Leu Arg Val Gln Glu Asn Ala Leu Asn Gly
174 290 295 300
175 Thr Thr Thr Glu Met Asp Asp Ala Ser Glu Ala Asn Met Glu Leu Leu
176 305 310 315 320
177 Val Gln Val Gly Glu Thr Leu Leu Lys Lys Pro Val Ser Arg Asp Ser
178 325 330 335
179 Pro Glu Thr Tyr Glu Glu Ala Leu Lys Arg Phe Ala Lys Leu Leu Ser
180 340 345 350
181 Asp Arg Lys Lys Leu Arg Ala Asn Lys Ala Ser Tyr
182 355 360
184 <210> SEQ ID NO: 4
185 <211> LENGTH: 386
186 <212> TYPE: PRT
187 <213> ORGANISM: synthetic
188 <220> FEATURE:
W--> 189 <221> NAME/KEY: Protein
190 <222> LOCATION: (1)...(386)
191 <223> OTHER INFORMATION: Patatin isozyme PatL+ (including signal peptide)
192 <400> SEQUENCE: 4
193 Met Ala Thr Thr Lys Ser Phe Leu Ile Leu Phe Phe Met Ile Leu Ala
194 1 5 10 15

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```

195 Thr Thr Ser Ser Thr Cys Ala Lys Leu Glu Glu Met Val Thr Val Leu
196      20          25          30
197 Ser Ile Asp Gly Gly Gly Ile Lys Gly Ile Ile Pro Ala Ile Ile Leu
198      35          40          45
199 Glu Phe Leu Glu Gly Gln Leu Gln Glu Val Asp Asn Asn Lys Asp Ala
200      50          55          60
201 Arg Leu Ala Asp Tyr Phe Asp Val Ile Gly Gly Thr Ser Thr Gly Gly
202      65          70          75          80
203 Leu Leu Thr Ala Met Ile Thr Thr Pro Asn Glu Asn Asn Arg Pro Phe
204      85          90          95
205 Ala Ala Ala Lys Asp Ile Val Pro Phe Tyr Phe Glu His Gly Pro His
206      100         105         110
207 Ile Phe Asn Tyr Ser Gly Ser Ile Leu Gly Pro Met Tyr Asp Gly Lys
208      115         120         125
209 Tyr Leu Leu Gln Val Leu Gln Glu Lys Leu Gly Glu Thr Arg Val His
210      130         135         140
211 Gln Ala Leu Thr Glu Val Ala Ile Ser Ser Phe Asp Ile Lys Thr Asn
212      145         150         155         160
213 Lys Pro Val Ile Phe Thr Lys Ser Asn Leu Ala Lys Ser Pro Glu Leu
214      165         170         175
215 Asp Ala Lys Met Tyr Asp Ile Cys Tyr Ser Thr Ala Ala Ala Pro Ile
216      180         185         190
217 Tyr Phe Pro Pro His His Phe Val Thr His Thr Ser Asn Gly Ala Arg
218      195         200         205
219 Tyr Glu Phe Asn Leu Val Asp Gly Ala Val Ala Thr Val Gly Asp Pro
220      210         215         220
221 Ala Leu Leu Ser Leu Ser Val Ala Thr Arg Leu Ala Gln Glu Asp Pro
222      225         230         235         240
223 Ala Phe Ser Ser Ile Lys Ser Leu Asp Tyr Lys Gln Met Leu Leu Leu
224      245         250         255
225 Ser Leu Gly Thr Gly Thr Asn Ser Glu Phe Asp Lys Thr Tyr Thr Ala
226      260         265         270
227 Glu Glu Ala Ala Lys Trp Gly Pro Leu Arg Trp Met Leu Ala Ile Gln
228      275         280         285
229 Gln Met Thr Asn Ala Ala Ser Ser Tyr Met Thr Asp Tyr Tyr Ile Ser
230      290         295         300
231 Thr Val Phe Gln Ala Arg His Ser Gln Asn Asn Tyr Leu Arg Val Gln
232      305         310         315         320
233 Glu Asn Ala Leu Asn Gly Thr Thr Glu Met Asp Asp Ala Ser Glu
234      325         330         335
235 Ala Asn Met Glu Leu Leu Val Gln Val Gly Ala Thr Leu Leu Lys Lys
236      340         345         350
237 Pro Val Ser Lys Asp Ser Pro Glu Thr Tyr Glu Glu Ala Leu Lys Arg
238      355         360         365
239 Phe Ala Lys Leu Leu Ser Asp Arg Lys Lys Leu Arg Ala Asn Lys Ala
240      370         375         380
241 Ser Tyr
242      385
244 <210> SEQ ID NO: 5

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RAW SEQUENCE LISTING ERROR SUMMARY                   DATE: 08/30/2004  
PATENT APPLICATION: US/10/682,011                   TIME: 12:37:44

Input Set : N:\Crf3\RULE60\10682011.raw  
Output Set: N:\CRF4\08302004\J682011.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:14; Xaa Pos. 2,4  
Seq#:15; Xaa Pos. 2,3  
Seq#:42; Xaa Pos. 3,5

Invalid Line Length:

The rules require that a line not exceed 72 characters in length. This includes spaces.

Seq#:2; Line(s) 79  
Seq#:3; Line(s) 135  
Seq#:15; Line(s) 820  
Seq#:37; Line(s) 1585  
Seq#:38; Line(s) 1670  
Seq#:40; Line(s) 1760  
Seq#:41; Line(s) 1828

## VERIFICATION SUMMARY

PATENT APPLICATION: US/10/682,011

DATE: 08/30/2004

TIME: 12:37:44

Input Set : N:\Crf3\RULE60\10682011.raw

Output Set: N:\CRF4\08302004\J682011.raw

L:17 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:1  
L:77 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:2  
L:133 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:3  
L:189 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:4  
L:249 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:5  
L:309 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:6  
L:369 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:7  
L:431 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:8  
L:493 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:9  
L:567 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:10  
L:629 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:11  
L:691 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:12  
L:753 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:13  
L:806 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:14  
L:810 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:14 after pos.:0  
L:818 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:15  
L:822 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15 after pos.:0  
L:830 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:16  
L:842 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:17  
L:854 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:18  
L:865 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:19  
L:876 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:20  
L:905 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:21  
L:961 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:22  
L:990 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:23  
L:1046 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:24  
L:1075 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:25  
L:1131 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:26  
L:1160 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:27  
L:1216 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:28  
L:1245 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:29  
L:1301 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:30  
L:1331 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:31  
L:1391 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:32  
L:1421 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:33  
L:1481 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:34  
L:1511 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:35  
L:1571 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:36  
L:1668 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:38  
L:1698 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:39  
L:1758 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:40  
L:1826 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:41  
L:1882 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:42  
L:1886 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:42 after pos.:0  
L:1894 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:43  
L:1905 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:44  
L:1916 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:45  
L:1927 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:46

**VERIFICATION SUMMARY**

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Input Set : N:\Crf3\RULE60\10682011.raw

Output Set: N:\CRF4\08302004\J682011.raw

L:1938 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:47  
L:1949 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:48  
L:1960 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:49  
L:1971 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:50  
L:1982 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:51